

ABSTRACT OF THE DISCLOSURE

A voltage-controlled tunable filter which includes a plurality of coaxial combline resonators and wherein at least one of said plurality of coaxial combline resonators includes at least one metallized through-hole. The coupling between adjacent resonators is obtained via an aperture formed on a common wall between the resonators, and is controlled by the aperture size and position. An input/output coupling metallization on at least one surface of said plurality of coaxial combline resonators is included as well as at least one tunable varactor associated with said plurality of coaxial combline resonators. An iris connects said plurality of coaxial combline resonators. The tunable dielectric capacitors can include a substrate having a low dielectric constant with planar surfaces and the substrate can include a tunable dielectric film of low loss tunable dielectric material. The input/output coupling metallization can be metallized with a predetermined length, width, and gap distance and low loss isolation material can be used to isolate the outer bias metallic contact and the metallic electrode on the tunable dielectric.